Analytical Chemistry

DESIGN AND SYNTHESIS OF RESPONSE-DRIVEN COLLOIDAL DISPERSIONS

David J. Lestage, Daniel J. Schleis, and Marek W. Urban*
The University of Southern Mississippi
Department of Polymer Science
S. S. Box 10076
Hattiesburg, MS 39406-0076

The mobility of surfactant in a colloidal dispersion containing phospholipid is of concern when one considers the potential pharmaceutical possibilities of a bio-adapted system. Poly (methyl methacrylate/n-butyl acrylate) copolymer and Poly (n-Butyl Acrylate) were made using emulsion polymerization. Such latexes were then cast into films and allowed to coalesce in a controlled environment for three days. The samples were then annealed at various temperatures and the migration of surfactant to the F-A interface of the annealed samples was studied using FTIR-ATR. Creating similar latexes using an ionized phospholipid as a cosurfactant was then used in the comparative study to determine how the phospholipid affected the migration of the surfactant. It was found that the phospholipid halted migration of the surfactant even when the films were annealed at high temperatures. Further studies are ongoing to determine the reasons for this halting of surfactant.